

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kentaro RYUH et al. Application No.: 10/598,029 Confirmation No.: 9354 Filed: August 16, 2006 Title: DISPLAY DEVICE AND AUTOMOBILE HAVING THE SAME	Art Unit: 2629  Examiner: S. Moon
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**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated January 21, 2010 and the Advisory Action dated May 27, 2010, please consider Applicant's arguments and remarks concerning the rejections issued in the outstanding Office Action. Applicant has filed a Notice of Appeal with this Pre-Appeal Brief Request for Review.

Claims 1 and 3-10 are pending in this Application. Claims 1 and 3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuyoshi (JP 2001-117533) in view of Wakita (U.S. 2002/0154077). Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuyoshi and Wakita in view of Baba (U.S. 2002/0003522). Claims 6-8 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuyoshi and Wakita in view of Kwon (U.S. 6,360,149). Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuyoshi and Wakita in view of Morita (U.S. 7,154,488).

Applicant's claim 1 recites the following feature:

"... both the first and second vertical scanning frequencies used to display still images on the first and second display sections are lower than both the first and second vertical scanning frequencies used to display moving images on the first and second display sections."

The Examiner alleged that the combination of Nobuyoshi and Wakita teaches the features recited in Applicant's claim 1. More specifically, in the Office Action dated January 21, 2010, the Examiner admitted, "Nobuyoshi does not expressly teach the first and second vertical scanning frequencies being first and second frequencies when the first and second display

sections are displaying still images and the first and second vertical scanning frequencies being third and fourth frequencies when the first and second display sections are displaying moving images, wherein the first and second frequencies are lower than the third and fourth frequencies." To remedy this deficiency in Nobuyoshi the Examiner relied on Wakita, alleging, "Wakita [claim 13] teaches the concept of driving a display section at a first frequency when the display section displays still images and at a second frequency when the display section displays moving images, wherein the first frequency is lower than the second frequency."

Thus, the Examiner concluded, "[I]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display device of Nobuyoshi to drive the display sections at first and second frequencies when the display sections display still images and at third and fourth frequencies when the display sections display moving images, wherein the first and second frequencies are lower than the third and fourth frequencies, as taught by Wakita, in order to optimize the power consumption of the display device of Nobuyoshi." In the Advisory Action dated May 27, 2010, the Examiner further stated:

Examiner respectfully submits that nowhere in the Wakita reference discloses that having a normally white pixel (herein after "*NW pixel*") and a normally black pixel (herein after "*NB pixel*") is a requirement for driving a display at two different frequencies. Examiner respectfully requests the Applicants either to cite the portion of the Wakita reference disclosing such subject matter or to explain how having a NW pixel and a NB pixel is a requirement for driving a display at two different frequencies. A NW pixel is merely a pixel which is white when no voltage is applied to and is black when a full voltage is applied to. A NB pixel is merely a pixel which is black when no voltage is applied to and is white when a full voltage is applied to. Thus, whether a pixel is a NW pixel or a NB pixel is not directly related to a vertical scanning frequency of a display. Accordingly, Examiner respectfully submits that having a NW pixel and a NB pixel is not a requirement for a display to be driven with two different vertical scanning frequencies."

Applicant respectfully disagrees and submits that one having ordinary skill in the art at the time of Applicant's invention would not have been motivated to modify Nobuyoshi in view of Wakita in the manner alleged by the Examiner because one having ordinary skill in the art at the time of the invention would not have had any expectation of success in using the frequency lowering technique of Wakita in the display device of Nobuyoshi because, contrary to the

Examiner's allegations, the frequency lowering technique taught by Wakita will only work on a display that includes both normally white and normally black pixels.

Nobuyoshi teaches a display device with a matrix 107 that includes a left-hand side block 170a and right-hand side block 170b, as shown in Fig. 1 of Nobuyoshi. However, Nobuyoshi merely teaches displaying different video formats (for example, NTSC and computer formats) on the left-hand side block 170a and right-hand side block 170b, as discussed in paragraph [0030] of the English language translation of Nobuyoshi. Nobuyoshi does not teach or suggest a display that includes both normally white and normally black pixels.

Wakita teaches a special purpose display device with an unconventional liquid crystal display that includes different adjacent pixels A, B, as shown in Fig. 1 and discussed in paragraph [0034] of Wakita. As discussed in paragraphs [0002]-[0006] of Wakita, the object of the special purpose display device is to provide a driving system that can sufficiently reduce flickering even when a driving frequency of the special purpose display device is lowered. In order to achieve this object, Wakita provides "a display element comprising: a multiplicity of pixels having a light modulating medium and a pixel electrode; and a voltage applying means for sequentially selecting a specific pixel from the multiplicity of pixels and applying a signal voltage thereto in accordance with an image signal; wherein each of the pixels has a differential coefficient  $df(t)/d(t)$  obtained by differentiating the real function  $f(t)$  representing the time variation of the output light intensity of the pixel after the signal voltage has been applied thereto, and each of the pixels satisfies a relationship with at least one adjacent pixel thereto such that the differential coefficients  $df(t)/d(t)$  have opposite signs," as discussed in paragraph [0008] of Wakita.

Wakita further goes on to teach a total of 13 embodiments, all of which require adjacent pixels to be arranged to "have opposite signs" and "have, in the absence of an electric field, display states such that one is in a bright state while the other is in a dark state" and "alternate between light and dark." As discussed in, for example, paragraphs [0038]-[0041] of Wakita, the above emphasized feature of reduced flickering is only possible because the special purpose display device of Wakita includes both normally white and normally black pixels such

that at least half of the screen of the special purpose display device of Wakita will be transmitting light at all times no matter what voltage levels are being applied to the pixels. Therefore, the frequency lowering technique taught by Wakita is only possible by using a special purpose display device including both normally white and normally black pixels arranged to be directly adjacent to one another.

The Examiner alleged that it would have been obvious to “optimize the power consumption of the display device of Nobuyoshi” by using the lowered frequencies of Wakita. However, **the display device of Nobuyoshi uses field emission and plasma display panels, as discussed in paragraphs [0018] and [0036] of Nobuyoshi, and as is well known in the art, both field emission and plasma displays are only capable of generating normally black pixels and cannot be modified to include the normally white pixels required by Wakita.** Accordingly, because the display of Nobuyoshi does not and cannot include both of a normally white mode pixel and a normally black mode pixel, one having ordinary skill in the art at the time of Applicant’s invention would not have been motivated to have modified Nobuyoshi to perform the frequency lowering technique taught by Wakita because the person of ordinary skill in the art would have recognized that such a modification of Nobuyoshi would not be successful and would render the display device of Nobuyoshi inoperative.

As the Examiner is aware, normally white pixels and normally black pixels have substantially different applied voltage requirements and viewing angle characteristics and could not be used in systems which switch between different display formats that require different horizontal and vertical frequencies because the hardware requirements for such a system that requires both normally white pixels and normally black pixels would change for each different display format, and thus could not be implemented in Nobuyoshi even if Nobuyoshi taught display panels other than field emission and plasma display panels. Finally, any modification of Nobuyoshi to include normally white pixels and normally black pixels would significantly hinder Nobuyoshi’s ability to provide a display that can provide many different types of video formats on separate display areas by switching between different horizontal and vertical frequencies for different formats.

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Thus, one having ordinary skill in the art at the time of Applicant's invention would not have any reason to combine Nobuyoshi and Wakita as suggested by the Examiner and would have instead recognized that such a combination would destroy the intended function and operation of the display device of Nobuyoshi.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Nobuyoshi in view of Wakita.

The Examiner relied upon Baba, Kwon, and Morita to allegedly cure the deficiencies of Nobuyoshi and Wakita. However, Baba, Kwon, and Morita clearly fail to teach or suggest the feature of "both the first and second vertical scanning frequencies used to display still images on the first and second display sections are lower than both the first and second vertical scanning frequencies used to display moving images on the first and second display sections" as recited in Applicant's claim 1. Accordingly, Applicant respectfully submits that Nobuyoshi, Wakita, Baba, Kwon, and Morita, applied alone or in combination, fail to teach or suggest the unique combination and arrangement of elements recited in Applicant's claim 1.

In view of the foregoing amendments and remarks, Applicant respectfully submits that claim 1 is allowable. Claims 3-10 depend upon claim 1, and are therefore allowable for at least the reasons that claim 1 is allowable.

To the extent necessary, Applicant petitions the Commissioner for a THREE-month extension of time, extending to July 21, 2010, the period for response to the Office Action dated January 21, 2010.

Respectfully submitted,

Dated: July 19, 2010

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